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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



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[Title of the Invention]	Image Forming Apparatus and Scanned Data Processing Method

[Scope of the claims]

5 [Claim 1]

An image forming apparatus comprising a scanner engine and providing a user with service involved in image forming processing, characterized by further comprising:

a scan processing means for causing the scanner engine to perform scan processing on a document to generate scanned data; and

a transfer means for transferring the scanned data generated by the scan processing means to a WEB server connected to an Internet.

[Claim 2]

15 The image forming apparatus according to claim 1, characterized in that the transfer means displays a storage destination selection screen for selecting a storage area of the scanned data on the WEB server and transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen.

[Claim 3]

20 The image forming apparatus according to claim 1 or 2, characterized by further comprising a print processing means for receiving the scanned data stored on the WEB server and performing print processing on the received scanned data.

[Claim 4]

25 The image forming apparatus according to claim 3, characterized in that the print processing means displays a data selection screen displaying a list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing.

30 [Claim 5]

The image forming apparatus according to claim 4, characterized by

further comprising:

hardware resources used for image forming processing;

an application for performing processing specific to each service to a user involved in the image forming processing; and

5 control service interposed between the application and the hardware resources for, when providing the service to the user, issuing an acquisition request for the hardware resource which is needed in common by at least two applications, managing and controlling execution of the hardware resource, and performing the image forming processing,
10 wherein the application comprises a SCAN to WEB application operating as the scan processing means, the transfer means, and the print processing means.

[Claim 6]

An image forming apparatus comprising a scanner engine and providing
15 a user with service involved in image forming processing, the image forming apparatus being characterized by further comprising:

a scan processing means for causing the scanner engine to perform scan processing on a document to generate scanned data;

a character recognizing means for performing character recognition
20 processing on the scanned data generated by the scan processing means to generate recognized data; and

a transfer means for transferring the recognized data generated by the character recognizing means to a WEB server connected to an Internet.

25 [Claim 7]

The image forming apparatus according to claim 6, characterized in that the transfer means displays a storage destination selection screen for selecting a storage area of the recognized data on the WEB server and transfers the recognized data to the storage area on the
30 WEB server selected on the storage destination selection screen.

[Claim 8]

The image forming apparatus according to claim 6 or 7, characterized

by further comprising a print processing means for receiving the recognized data stored in the storage area on the WEB server and performing print processing on the received recognized data.

[Claim 9]

5 The image forming apparatus according to claim 8, characterized in that the print processing means displays a data selection screen displaying a list of the recognized data stored on the WEB server and receives the recognized data selected on the data selection screen for the print processing.

10 [Claim 10]

The image forming apparatus according to claim 9, characterized by further comprising:

hardware resources used in image forming processing;

an application for performing processing specific to each service
15 to a user involved in the image forming processing; and

control service interposed between the application and the hardware resources for, when providing the service to the user, issuing an acquisition request for the hardware resource which is needed in common by at least two applications, managing and controlling execution of
20 the hardware resource, and performing the image forming processing, wherein the application comprises a SCAN to WEB application operating as the scan processing means, the transfer means, and the print processing means, and a character recognition application operating as the character recognizing means.

25 [Claim 11]

A scanned data processing method for processing scanned data of an image scanned by a scanner engine, characterized by comprising:

a scan processing step for causing the scanner engine to perform scan processing on a document to generate the scanned data; and

30 a transfer step for transferring the scanned data generated in the scan processing step to a WEB server connected to an Internet.

[Claim 12]

The scanned data processing method according to claim 11, characterized in that the transfer step displays a storage destination selection screen for selecting a storage area of the scanned data on the WEB server and transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen.

[Claim 13]

The scanned data processing method according to claim 11 or 12, characterized by further comprising a print processing step for receiving the scanned data stored on the WEB server and performing print processing on the received scanned data.

[Claim 14]

The scanned data processing method according to claim 13, characterized in that the print processing step displays a data selection screen displaying a list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing.

[Claim 15]

A scanned data processing method for processing scanned data of an image scanned by a scanner engine, characterized by comprising:

a scan processing step for causing the scanner engine to perform scan processing on a document to generate the scanned data;

a character recognizing step for performing character recognition processing on the scanned data generated in the scan processing step to generate recognized data; and

a transfer step for transferring the recognized data generated in the character recognizing step to a WEB server connected to an Internet.

[Claim 16]

The scanned data processing method according to claim 15, characterized in that the transfer step displays a storage destination selection screen for selecting a storage area of the recognized data

on the WEB server and transfers the recognized data to the storage area on the WEB server selected on the storage destination selection screen.

[Claim 17]

5 The scanned data processing method according to claim 15 or 16, characterized by further comprising a print processing step for receiving the recognized data stored in the storage area on the WEB server and performing print processing on the received recognized data.

10 [Claim 18]

The scanned data processing method according to claim 17, characterized in that the print processing step displays a data selection screen displaying a list of the recognized data stored on the WEB server and receives the recognized data selected on the data selection screen for the print processing.

15 [Technical Field of the Invention]

[0001]

The present invention relates to an image forming apparatus and a scanned data processing method capable of providing a user with service involved in image forming processing performed by a printer, a copier, a facsimile, a scanner, and the like, and transferring scanned data to a WEB server or the like on the Internet.

[Background Art]

[0002]

25 Recently, an image forming apparatus including capabilities of a printer, a copier, a facsimile, a scanner, and the like, respectively, in one housing (hereinafter referred to as "composite machine") has been known. The composite machine includes a display unit, a printing unit, an imaging unit, and the like, all provided in one housing. In addition, the composite machine includes three types of software corresponding to the printer, copier, and facsimile apparatuses,

respectively, so that switching is made among these types of software so as to operate the apparatus as the printer, copier, scanner, or facsimile apparatus.

[0003]

5 The conventional composite machine includes software for the printer, copier, scanner and facsimile apparatuses, respectively, which is provided independently from each other. Thus, developing each software involves considerable time. Therefore, the applicant has developed an image forming apparatus (composite machine) including: hardware
10 resources used for image forming processing performed by a display unit, a printing unit, and an imaging unit; a plurality of applications for performing processing specific to each service to the user for e.g. the printer, the copier, the facsimile, or the like; and a platform which is interposed between the applications and the hardware
15 resources and performs various control service for managing the hardware resources required in common by at least two of the applications and performing execution control as well as image processing so as to provide the user with the service.

[0004]

20 In such a composite machine, the scanned data generated by performing scan processing on a document by the scanner is generally printed immediately or stored in a storage unit such as a hard disc in the composite machine.

[Problem to be Solved]

25 [0005]

However, there may be cases requiring collective storage of the scanned data in a computer on a network rather than in the composite machine. That is, since the composite machine is frequently used by many users, a trouble such as a failure or breakage of the storage
30 unit arises in some cases. In such a case, the scanned data stored in the composite machine may be no longer read out.

[0006]

In addition, in a case of managing the scanned data in respective composite machines, an increase in the number of scanned data to be managed by each composite machines under a condition that many
5 composite machines are connected on the network leads to a problem such that the scanned data may not be efficiently used, since, when using the stored scanned data in later time, it is necessary to determine which composite machine stores the scanned data to be used.

[0007]

10 The present invention has been made in view of the above-mentioned problem and it is an object of the present invention to provide an image forming apparatus and a scanned data processing method capable of ensuring scanned data and allowing efficient usage of the scanned data even in the event of a failure of the image forming apparatus.

15 [Means for Solving the Problem]

[0008]

In order to achieve the above objective, the invention as described in claim 1 refers to an image forming apparatus including a scanner engine and providing a user with service involved in image forming
20 processing, being characterized by further including: a scan processing means for causing the scanner engine to perform scan processing on a document to generate scanned data; and a transfer means for transferring the scanned data generated by the scan processing means to a WEB server connected to an Internet.

25 [0009]

According to the invention of claim 1, the scan processing means causes the scanner engine to perform the scan processing on the document and the transfer means transfers the generated scanned data to the WEB server connected to the Internet. Consequently, the scanned
30 data may be collectively managed by the WEB server, thereby allowing ensuring the scanned data even in the event of failure of the image

forming apparatus and also efficient usage of the scanned data. Moreover, according to the invention of claim 1, the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming
5 apparatus.

[0010]

The invention as described in claim 2 refers to the image forming apparatus according to claim 1, characterized in that the transfer means displays a storage destination selection screen for selecting
10 a storage area of the scanned data on the WEB server and transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen.

[0011]

According to the invention of claim 2, the transfer means displays
15 the storage destination selection screen for selecting the storage area of the scanned data on the WEB server and transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen. Consequently, the scanned data may be collectively managed in a desired storage area on the WEB server,
20 thereby allowing ensuring the scanned data even in the event of failure of the image forming apparatus and also the efficient usage of the scanned data.

[0012]

The invention as described in claim 3 refers to the image forming
25 apparatus according to claim 1 or 2, characterized by further including a print processing means for receiving the scanned data stored on the WEB server and performing print processing on the received scanned data.

[0013]

30 According to the invention of claim 3, the print processing means receives the scanned data stored on the WEB server and performs the

print processing on the received scanned data. Consequently, the scanned data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the scanned data managed by the WEB server.

5 [0014]

The invention as described in claim 4 refers to the image forming apparatus according to claim 3, characterized in that the print processing means displays a data selection screen displaying a list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing.

[0015]

According to the invention of claim 4, the print processing means displays the data selection screen displaying the list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing. Consequently, desired scanned data from among the scanned data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the scanned data managed by the WEB server.

20 [0016]

The invention as described in claim 5 refers to the image forming apparatus according to claim 4, characterized by further including: hardware resources used for image forming processing; an application for performing processing specific to each service to a user involved in the image forming processing; and control service interposed between the application and the hardware resources for, when providing the service to the user, issuing an acquisition request for the hardware resource which is needed in common by at least two applications, managing and controlling execution of the hardware resource, and performing the image forming processing. The application includes a SCAN to WEB application operating as the scan processing

means, the transfer means, and the print processing means.

[0017]

According to the invention of claim 5, the hardware resources, the application, and the control service interposed between the application and the hardware resources are provided. The application includes the SCAN to WEB application operating as the scan processing means, the transfer means, and the print processing means.

Consequently, software development for applications including the SCAN to WEB application may be carried out with only a portion specific to the user, thereby reducing labor of the software development.

[0018]

The invention as described in claim 6 refers to an image forming apparatus including a scanner engine and providing a user with service involved in image forming processing. The image forming apparatus is characterized by further including: a scan processing means for causing the scanner engine to perform scan processing on a document to generate scanned data; a character recognizing means for performing character recognition processing on the scanned data generated by the scan processing means to generate recognized data; and a transfer means for transferring the recognized data generated by the character recognizing means to a WEB server connected to an Internet.

[0019]

According to the invention of claim 6, the scan processing means causes the scanner engine to perform the scan processing on the document to generate the scanned data, the character recognizing means performs the character recognition processing on the scanned data generated by the scan processing means to generate the recognized data, and the transfer means transfers the recognized data generated by the character recognizing means to the WEB server connected to the Internet. Consequently, the recognized data may be collectively managed by the WEB server, thereby allowing ensuring the recognized data even in the event of failure of the image forming apparatus and also efficient usage of the recognized data. Moreover, according to the invention

of claim 6, the generated recognized data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0020]

5 The invention as described in claim 7 refers to the image forming apparatus according to claim 6, characterized in that the transfer means displays a storage destination selection screen for selecting a storage area of the recognized data on the WEB server and transfers the recognized data to the storage area on the WEB server selected
10 on the storage destination selection screen.

[0021]

According to the invention of claim 7, the transfer means displays the storage destination selection screen for selecting the storage area of the recognized data on the WEB server and transfers the
15 recognized data to the storage area on the WEB server selected on the storage destination selection screen. Consequently, the recognized data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the recognized data even in the event of failure of the image forming apparatus and also the efficient usage
20 of the recognized data.

[0022]

The invention as described in claim 8 refers to the image forming apparatus according to claim 6 or 7, characterized by further including a print processing means for receiving the recognized data stored in
25 the storage area on the WEB server and performing print processing on the received recognized data.

[0023]

According to the invention of claim 8, the print processing means receives the recognized data stored in the storage area on the WEB
30 server and performs the print processing on the received recognized data. Consequently, the recognized data stored on the WEB server may be printed by reference from the image forming apparatus without using

a client terminal, thereby improving usability of the recognized data managed by the WEB server.

[0024]

5 The invention as described in claim 9 refers to the image forming apparatus according to claim 8, characterized in that the print processing means displays a data selection screen displaying a list of the recognized data stored on the WEB server and receives the recognized data selected on the data selection screen for the print processing.

10 [0025]

According to the invention of claim 9, the print processing means displays the data selection screen displaying the list of the recognized data stored on the WEB server and receives the recognized data selected on the data selection screen for the print processing.
15 Consequently, desired recognized data from among the recognized data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the recognized data managed by the WEB server.

[0026]

20 The invention as described in claim 10 refers to the image forming apparatus according to claim 9, characterized by further including:
hardware resources used for image forming processing; an application for performing processing specific to each service to a user involved in the image forming processing; and control service interposed
25 between the application and the hardware resources for, when providing the service to the user, issuing an acquisition request for the hardware resource which is needed in common by at least two applications, managing and controlling execution of the hardware resource, and performing the image forming processing. The application
30 includes a SCAN to WEB application operating as the scan processing means, the transfer means, and the print processing means, and a character recognition application operating as the character

recognizing means.

[0027]

According to the invention of claim 10, the hardware resources, the application, and the control service interposed between the application and the hardware resources are provided. The application includes the SCAN to WEB application operating as the scan processing means, the transfer means, and the print processing means, and the character recognition application operating as the character recognizing means. Consequently, software development for applications including the SCAN to WEB application and the character recognition application may be carried out with only a portion specific to the user, thereby reducing labor of the software development.

[0028]

The invention as described in claim 11 refers to a scanned data processing method for processing scanned data of an image scanned by a scanner engine, characterized by including: a scan processing step for causing the scanner engine to perform scan processing on a document to generate the scanned data; and a transfer step for transferring the scanned data generated in the scan processing step to a WEB server connected to an Internet.

[0029]

According to the invention of claim 11, the scan processing step causes the scanner engine to perform the scan processing on the document to generate the scanned data, and the transfer step transfers the generated scanned data to the WEB server connected to the Internet. Consequently, the scanned data may be collectively managed by the WEB server, thereby allowing ensuring the scanned data even in the event of failure of an image forming apparatus and also efficient usage of the scanned data. Moreover, according to the invention of claim 11, the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0030]

The invention as described in claim 12 refers to the scanned data processing method according to claim 11, characterized in that the transfer step displays a storage destination selection screen for selecting a storage area of the scanned data on the WEB server and
5 transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen.

[0031]

According to the invention of claim 12, the transfer step displays the storage destination selection screen for selecting the storage
10 area of the scanned data on the WEB server and transfers the scanned data to the storage area on the WEB server selected on the storage destination selection screen. Consequently, the scanned data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the scanned data even in the event of failure
15 of the image forming apparatus and also the efficient usage of the scanned data.

[0032]

The invention as described in claim 13 refers to the scanned data processing method according to claim 11 or 12, characterized by further
20 including a print processing step for receiving the scanned data stored on the WEB server and performing print processing on the received scanned data.

[0033]

According to the invention of claim 13, the print processing step
25 receives the scanned data stored on the WEB server and performs the print processing on the received scanned data. Consequently, the scanned data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the scanned data managed by the WEB server.

30 [0034]

The invention as described in claim 14 refers to the scanned data processing method according to claim 13, characterized in that the print processing step displays a data selection screen displaying a

list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing.

[0035]

5 According to the invention of claim 14, the print processing step displays the data selection screen displaying the list of the scanned data stored on the WEB server and receives the scanned data selected on the data selection screen for the print processing. Consequently, desired scanned data from among the scanned data stored on the WEB
10 server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the scanned data managed by the WEB server.

[0036]

15 The invention as described in claim 15 refers to a scanned data processing method for processing scanned data of an image scanned by a scanner engine, characterized by including: a scan processing step for causing the scanner engine to perform scan processing on a document to generate the scanned data; a character recognizing step for performing character recognition processing on the scanned data
20 generated in the scan processing step to generate recognized data; and a transfer step for transferring the recognized data generated in the character recognizing step to a WEB server connected to an Internet.

[0037]

25 According to the invention of claim 15, the scan processing step causes the scanner engine to perform the scan processing on the document to generate the scanned data, the character recognizing step performs the character recognition processing on the scanned data generated in the scan processing step to generate the recognized data,
30 and the transfer step transfers the recognized data generated in the character recognizing step to the WEB server connected to the Internet. Consequently, the recognized data may be collectively managed by the WEB server, thereby allowing ensuring the recognized data even in the

event of failure of an image forming apparatus and also efficient usage of the recognized data.

[0038]

5 The invention as described in claim 16 refers to the scanned data processing method according to claim 15, characterized in that the transfer step displays a storage destination selection screen for selecting a storage area of the recognized data on the WEB server and transfers the recognized data to the storage area on the WEB server selected on the storage destination selection screen.

10 [0039]

According to the invention of claim 16, the transfer step displays the storage destination selection screen for selecting the storage area of the recognized data on the WEB server and transfers the recognized data to the storage area on the WEB server selected on the storage destination selection screen. Consequently, the recognized data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the recognized data even in the event of failure of the image forming apparatus and also the efficient usage of the recognized data. Moreover, according to the invention of claim 16, the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0040]

25 The invention as described in claim 17 refers to the scanned data processing method according to claim 15 or 16, characterized by further including a print processing step for receiving the recognized data stored in the storage area on the WEB server and performing print processing on the received recognized data.

[0041]

30 According to claim 17, the print processing step receives the recognized data stored in the storage area on the WEB server and performs the print processing on the received recognized data. Consequently, the recognized data stored on the WEB server may be

printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the recognized data managed by the WEB server.

[0042]

5 The invention as described in claim 18 refers to the scanned data processing method according to claim 17, characterized in that the print processing step displays a data selection screen displaying a list of the recognized data stored on the WEB server and receives the recognized data selected on the data selection screen for the print
10 processing.

[0043]

According to the invention of claim 18, the print processing step displays the data selection screen displaying the list of the recognized data stored on the WEB server and receives the recognized
15 data selected on the data selection screen for the print processing. Consequently, desired recognized data from among the recognized data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the recognized data managed by the WEB server.

20 [0044]

Preferred embodiments of an image forming apparatus and a scanned data processing method according to the present invention are to be described in detail below, with reference to the accompanying drawings.

25 [0045]

(First Embodiment)

Fig. 1 illustrates a main configuration of an image forming apparatus (hereinafter referred to as "composite machine") according to a first embodiment and a network configuration including the composite machine.
30 A composite machine 100 according to the first embodiment transfers a scanned data file generated by scan processing performed by a scanner

engine 103 to a WEB server 300 on the Internet, and stores the scanned data file in a storage directory 302 provided as a shared area in a hard disk drive (HDD) 301 of the WEB server 300. The composite machine 100 may access the WEB server 300 via PC (Personal Computer) 200, etc.
5 on the Internet to thereby display and print the scanned data.

[0046]

As illustrated in Fig. 1, the composite machine 100 of this embodiment is connected to Internet 170 to which the WEB server 300 and the PC 200 serving as a client terminal for the WEB server are connected.
10 In this embodiment, TCP/IP is adopted as a protocol for communication among the composite machine 100, the WEB server 300, and the PC 200.

[0047]

In order to provide the scanned data processing method of the invention, the composite machine 100 mainly includes a SCAN to WEB
15 application 117, an OCS function library 164, an image function library 165, control service such as OCS 126, SCS 122, ECS 124 and MCS 125 to be described below, inetd 141 and httpd 142 operating as daemons (processes) in a general-purpose OS, a scanner engine 103, a network controller 104, and an operation panel 150.

20 [0048]

The SCAN to WEB application 117 transfers image data of a document, which is obtained by scanning the document by the scanner engine 103, as scanned data to the Web server 300 on the Internet 170. The SCAN to WEB application 117 is also a process disposed at an application
25 layer to be described below. As illustrated in Fig.1, the SCAN to WEB application 117 includes a certification processing unit 161, a scan processing unit 162, and a transfer unit 163. The SCAN to WEB application 117 dynamically links the OCS function library 164 and the image function library 165.

30 [0049]

The certification processing unit 161 displays, on an operation

display unit of the operation panel 150, a login screen for logging in to the WEB server 300 and transmits a user ID and a password input on the login screen to the Web server 300 in an encoded manner. The encoded transmission of the user ID and the password is performed by
5 the https protocol via the httpd 142 and the network controller 104.

[0050]

The scan processing unit 162 calls functions related to scan processing, which are registered in the image function library 165, to control execution of scanning performed by the scanner engine 103.
10 Moreover, the scan processing unit 162 converts the image data scanned by the scanner engine 103 into scanned data in a TIFF format.

[0051]

The transfer unit 163 transfers the scanned data generated by the scan processing unit to the Web server 300 on the Internet 170. The
15 transmission of the scanned data concerned is performed by the http protocol via the httpd 142 and the network controller 104.

[0052]

The OCS function library 164 registers drawing functions related to output drawings on the operation display unit of the operation panel
20 150. The SCAN to WEB application 117 calls the drawing functions to output various screens on the operation display unit of the operation panel 150.

[0053]

The image function library 165 registers functions related to the
25 scan processing, such as issuing a scanning request to the scanner engine 103, and functions related to print processing. The SCAN to WEB application 117 calls the functions, thereby causing the scanner engine 103 to perform the scan processing on the document. In addition, calling these functions causes various requests to be issued to the
30 ECS 124 and MCS 125.

[0054]

The inetd 141 is a daemon which constantly monitors data transmission/reception requests and, upon detection of a connection request for a specific protocol, activates a server program which processes the corresponding protocol. The inetd 141 performs the
5 processing in the same manner as inetd in a normal UNIX (trademark). According to the composite machine 100 of the first embodiment, the inetd 141 constantly monitors a port for data transmission/reception by http and https protocols, and activates the httpd 142 upon detecting a connection request for a port concerned.

10 [0055]

The httpd 142 constantly monitors a port 80 which receives messages transmitted by the http and https protocols. The httpd 142 receives a request message and transmits a response message on the port 80. Structures of the request message and the response message are the
15 same as those of each message transmitted by a normal http protocol. Each message includes a message body written in an html format.

[0056]

The network controller 104 carries out communications of various data by the http protocol and the https protocol. The control service
20 such as the OCS 126, the SCS 122, the ECS 124, and the MCS 125 are to be described below.

[0057]

The Web server 300 is, for example, a host computer or a work station (WS) of an application service provider (ASP) or the like. A storage
25 directory 302 is prepared in the hard disk drive (HDD) 301 of the Web server 300 for storing the scanned data transmitted from the composite machine 100. The storing directory 302 is set in a sharable manner such that the composite machine 100 on the Internet may write data in the storage directory 302 and the PC 200 may read the data from
30 the storage directory 302.

[0058]

The PC 200 serves as a Web client of the Web server 300 and requests for various services from the Web server 300. A computer of a user accessing via the Internet 170 is applicable to the PC 200. In this embodiment, the PC 200 requests the Web server 300 to display the scanned data stored in the HDD 301.

[0059]

Next, an entire functional configuration of the composite machine 100 according to this embodiment is to be described. Fig.2 is a block diagram illustrating the entire configuration of the composite machine 100 according to the first embodiment. As illustrated in Fig.2, the composite machine 100 includes a black and white laser printer (B&W LP) 101, a color laser printer (Color LP) 102, a scanner engine 103, a network controller 104, and hardware resources 105 such as a facsimile, memory, and the like. The composite machine 100 is also provided with a software group 110 including a platform 120 and applications 130.

[0061]

The platform 120 includes: control service for interpreting a process request from the application and issuing a hardware resource acquisition request; a system resource manager (SRM) 123 for managing one or a plurality of hardware resources and arbitrating the acquisition request from the control service; and a general-purpose OS 121.

[0061]

The control service includes a plurality of service modules including SCS (system control service) 122, ECS (engine control service) 124, MCS (memory control service) 125, OCS (operation panel control service) 126, FCS (fax control service) 127, and NCS (network control service) 128. In addition, the platform 120 has application program interfaces (APIs) for enabling reception of processing requests from the applications 130 by using predetermined functions.

[0062]

The general-purpose OS 121 is a general-purpose operating system, such as UNIX (trademark), which executes each software of the platform 120 and each software of the applications 130 in parallel as processes
5 respectively.

[0063]

The process of the SRM 123 performs system control and resource management in corporation with the SCS 122. The process of the SRM 123 performs execution control by making arbitration in accordance
10 with requests from an upper layer which utilizes the hardware resources such as engines in the scanner unit and/or the printer unit, memory, a HDD file, and host I/Os (e.g. Centronics I/F, network I/F <network controller 104>, IEEE1394 I/F, RS232C I/F).

[0064]

15 More specifically, the SRM 123 determines whether or not the requested hardware resource is available (whether or not the hardware resource is now in use in response to another request), and, if available, notifies the upper layer that the requested hardware resource is available. In addition, the SRM 123 schedules usage of
20 the hardware resources for the request from the upper layer, and directly performs processing corresponding to the request (e.g. paper transfer and image forming operation performed by the printer engine, memory allocation, file creation).

[0065]

25 The process of the SCS 122 performs application management, operation unit control, system screen display, LED display, resource management, interrupt application control and so on.

[0066]

The process of the ECS 124 controls engines of the hardware resources
30 105 including the white and black laser printer (B&W LP) 101, the color laser printer (Color LP) 102, the scanner, the facsimile, and the like.

[0067]

The process of the MCS 125 performs operations such as obtaining and releasing image memory, using a hard disc device (HDD), and compressing and expanding image data.

5 [0068]

The process of the FCS 127 provides the APIs for facsimile transmission to and reception from each application layer of a system controller by using a PSTN/ISDN network, registration/extraction of various kinds of facsimile data managed by BKM (backup SRAM), facsimile
10 reading, facsimile reception and printing, and integrated transmission and reception.

[0069]

The process of the NCS 128 provides a service usable in common by applications which require a network I/O. The NCS 128 allocates data,
15 which is received from the network in accordance with a protocol, to a corresponding application and mediates data transmission from the application to the network.

[0070]

The process of the OCS 126 controls the operation panel 150 provided
20 as a means for information transmission between an operator (user) and a control unit of the machine. The OCS 126 is an OCS process for obtaining a key press (or a touch operation) as a key event from the operation panel, and transmitting a key event function corresponding to the obtained key to the SCS 122. Moreover, by calling from the
25 applications 130 or the control service various functions, such as a drawing function, which are registered in an OCS function library 164 as illustrated in Fig. 1, drawing and outputting various screens on the operation display unit of the operation panel 150 is controlled and other controls of the operation panel is also performed. The OCS
30 library is dynamically linked to each module of the applications 130 and the control service. The OCS 126 may be all operated either as

a process or as the OCS library.

[0071]

The applications 130 include a printer application 111 as an application for a printer having page description language (PDL), PCL, and a post script (PS), a copy application 112 as an application for a copy, a fax application 113 as an application for a facsimile, a scanner application 114 as an application for a scanner, a net file application 115 as an application for a network file, a process check application 116 as an application for process check, and the above-mentioned SCAN to WEB 117.

[0072]

Each process of the applications 130 and each process of the control service provide the user with service involved in image forming processing performed by the copier, the printer, the scanner, and the facsimile while performing inter-process communication through function call, transmission of a corresponding returned value, and message transmission and reception.

[0073]

As described above, the composite machine 100 according to the first embodiment includes a plurality of applications 130 and a plurality of control service each operating as a process. One or a plurality of threads are generated in each process so that parallel execution is performed in a unit of thread. The control service provides common service to the applications 130. Therefore, these many processes are operated in parallel and the threads are also operated in parallel while cooperating with one another through the inter-process communication so as to provide the user with the service involved in the image forming processing performed by the copier, the printer, the scanner, and the facsimile.

[0074]

Additionally, a third party such as a customer or a third vender

of the composite machine 100 may develop an external application to be loaded in the application layer located above a control service layer in the composite machine 100.

[0075]

5 The processes of the plurality of applications 130 and the processes of the plurality of control service operate in the composite machine 100 according to the first embodiment. The applications and the control service, however, may be respectively configured by a single process. Each of the applications 130 may be added or deleted individually.

10 [0076]

Next, the scanned data processing method performed by the composite machine 100 according to the first embodiment with the above-mentioned configuration is to be described. Fig. 3 illustrates a procedure for processing of scanning the document by the SCAN to WEB application 15 117 and processing of transferring the scanned data file to the WEB server 300.

[0077]

The user touches a capability selection button on an initial screen displayed on the operation display unit of the operation panel 150 20 to start the scan processing performed by the SCAN to WEB application. The SCS 122 displays the capability selection screen on the operation display unit 150a. Fig.4(a) is an example of a capability selection screen 410 displayed on the operation display unit 150a of the operation panel 150.

25 [0078]

When the user touches a "SCAN to WEB" button 412 on the capability selection screen 410 illustrated in Fig. 4(a), the OCS 126 receives a key event corresponding to the button, the SCS 122 notifies the event to the SCAN to WEB application 117, and then the SCAN to WEB application 30 117 starts the scanned data processing.

[0079]

In the SCAN to WEB application 117, the certification processing unit 161 displays, on the operation display unit 150a, a login screen 413 for logging in to the Web server 300 as illustrated in Fig. 5(b) (step S301). The screen is displayed on the operation display unit 150a by calling the drawing function registered in the OCS function library 164. The following description concerning the display on the operation display unit 150a is based on an assumption that the drawing function is called.

[0080]

On the login screen 413, when the user inputs the user ID and the password, the certification processing unit 161 receives each key code via the OCS 126 and the SCS 122, so that the received user ID and password are transmitted to the WEB server 300, thereby logging in to the WEB server (step S302).

[0081]

Subsequently, the certification processing unit 161 receives a login result from the Web server 300 and determines whether or not the login has succeeded (S303). If the login operation has failed, an error message indicating this situation is displayed on the operation display unit 150a (step S304).

[0082]

On the other hand, if the login operation has succeeded, the transfer unit 163 of the SCAN to Web application 117 displays a storage directory selection screen 414 on the operation display unit 150a of the operation panel 150 (step S305), thereby leading to a state of waiting for event input. Fig. 4(c) illustrates an example of the storage directory selection screen 414. As illustrated in Fig.4(c), a list of the directories of the WEB server 300 which store the scanned data is displayed in a selectable manner.

[0083]

At this step, the user selects, on the storage directory selection

screen 414, a desired directory on the Web server 300. Subsequently, the document to be scanned is set on ADF (Auto Document Feeder) of the composite machine 100 and a copy start button (not shown) is pressed.

5 [0084]

The transfer unit 163 determines whether or not the event received from the OCS 126 via the SCS 122 is the copy start button (step S306). If the event is the copy start button, the scan processing unit 162 starts the scan processing.

10 [0085]

The scan processing unit 162 calls a scan function registered in the image function library 165 to thereby start the scan processing on the document set on the ADF by the scanner engine 103 (step S307). The scan processing unit 162 is in a state of waiting for receiving
15 a scan processing end notification from the scanner engine 103 (S308). At this point of time, based on the scanning function, processing required for the scan processing is performed: the ECS 124 performs job generation and job start, and the MCS 124 performs image memory area allocation and release, for example.

20 [0086]

Upon receiving the scan processing end notification, the scan processing unit 162 reads the scanned image (bitmap format) which has been scanned by the scanner engine 103 and stored in the image memory, and converts the scanned image into a scanned data file in a TIFF format
25 (step S309). At this point, a file name is automatically generated. The user of the composite machine 100 may be allowed to specify the file name of the scanned data.

[0087]

The transfer unit 163 then specifies the directory selected on the
30 storage directory selection screen 414 and transfers the scanned data file converted by the scan processing unit 162 to the WEB server 300

(step S310). More specifically, the transfer processing is performed by the httpd 142 and the network controller 104 which are actuated by the inetd 141 in response to an instruction provided by the transfer unit 163.

5 [0088]

The Web server 300 receives the scanned data file from the composite machine 100, and stores the received scanned data file in the designated storage directory 302 in the HDD 301. During this operation, if a character recognition application is installed in the Web server
10 300, the character recognition application reads out contents of the scanned data file and performs character recognition processing before the file is stored in the HDD 301.

[0089]

Accordingly, the scanned data file generated by scanning the
15 document by the composite machine 100 is stored in the shared storage directory 302 on the Web server 300.

[0090]

Since the storage directory 302 is a shared directory, the scanned data file stored in the storage directory 302 in the WEB server 300
20 may be displayed by using a Web browser 201 on the PC 200. More specifically, the login to the Web server 300 may be performed by using the Web browser 201 in the PC 200 to access the storage directory 302 so that the Web browser 201 may display the desired scanned data file stored in the storage directory 302. Moreover, when printing the
25 scanned data file, the printing operation may be performed with a desired printer by utilizing a printing capability provided by the WEB browser 201, with the scanned data file being displayed by the Web browser 201.

[0091]

30 As mentioned above, according to the composite machine 100 of the first embodiment, the scan processing unit 162 of the SCAN to WEB

application 117 causes the scanner engine 103 to scan the document to generate the scanned data. Then, the transfer unit 163 transfers the generated scanned data to the Web server 300 on the Internet 170. Consequently, the scanned data may be collectively managed by the Web
5 server 300, thereby ensuring the scanned data even in the event of failure of the composite machine 100 and also allowing efficient usage of the scanned data.

[0092]

(Second embodiment)

10 According to the composite machine 100 of the first embodiment, since the SCAN to WEB application 117 simply transfers the scanned data of the document to the shared storage directory on the WEB server 300), when printing the scanned data file, the PC 200 on the Internet 170 accesses the Web server 300 for printing the scanned data by the WEB
15 browser 201. On the other hand, a composite machine 500 of the second embodiment further accesses the WEB server 300 to enable printing the scanned data file stored in the storage directory.

[0093]

Fig. 5 illustrates a main configuration of the composite machine
20 500 according to the second embodiment and a network configuration including the compound machine 500. As illustrated in Fig.5, like the first embodiment, the composite machine 500 of the second embodiment is connected to the Internet 170 to which the WEB server 300 and the PC 200, which serves as the client terminal for the WEB server 300,
25 are connected. TCP/IP is used as a protocol for communication among the composite machine 500, the Web server 300, and the PC 200.

[0094]

In order to provide the scanned data processing method of the invention, the composite machine 500 mainly includes, as illustrated
30 in Fig. 5, a SCAN to WEB application 517, an OCS function library 164, an image function library 165, control service such as OCS 126, SCS

122, ECS 124 and MCS 125 to be described below, inetd 141 and httpd 142 operating as daemons (processes) in a general-purpose OS, a scanner engine 103, a black and white laser printer 101, a color laser printer (Color LP) 102, a network controller 104, and an operation panel 150.

5 [0095]

The composite machine 500 of the second embodiment is different from the composite machine 100 of the first embodiment in a configuration of the SCAN to WEB application 517. More specifically, the SCAN to WEB application 517 of the second embodiment includes a certification
10 processing unit 161, a scan processing unit 162, a transfer unit 163, and a print processing unit 501. The SCAN to WEB application 517 is different from the SCAN to WEB application 117 of the first embodiment in that the SCAN to WEB application 517 includes the print processing unit 501.

15 [0096]

The print processing unit 501 displays, on an operation display unit 150a of the operation panel 150, a scanned data file list screen indicating a list of scanned data files stored in a shared storage directory 302 on the WEB server 300. In addition, the print processing
20 unit 501 calls a function related to print processing which is registered in the image function library 165, and prints the scanned data file selected on the scanned data file list screen by the user.

[0097]

Other configurations of the SCAN to WEB application 517, the
25 composite machine 500, the PC 200, and the Web server 300 are the same as those of the first embodiment. Thus, the same numerals as used in the first embodiment are provided for these configurations and description concerning the configurations is to be omitted.

[0098]

30 Processing of scanning the document and processing of transferring the scanned data to the WEB server 300 are performed by the SCAN to

WEB application 517 of the composite machine according to the second embodiment in the same manner as the processing (Fig. 3) performed by the SCAN to WEB application 117 of the first embodiment.

[0099]

5 Next, the print processing performed on the scanned data file by the composite machine 500 of the second embodiment is to be described below. Fig.7 is a flowchart illustrating a procedure of the print processing performed on the scanned data by the SCAN to WEB application 517.

10 [0100]

 The user first touches a capability selection button on an initial screen displayed on the operation display unit 150a of the operation panel 150 to start printing the scanned data by the SCAN to WEB application 517. Then, the SCS 122 displays a capability selection
15 screen on the operation display unit. Fig.8(a) illustrates an example of a capability selection screen 701 displayed on the operation display unit 150a of the operation panel 150.

[0101]

 When the user touches a "SCAN to WEB print" button 702 on the
20 capability selection screen illustrated in Fig. 7(a), the OCS 126 receives a key event corresponding to the button, the SCS 122 notifies the event to the SCAN to WEB application 517, and then the SCAN to WEB application 517 starts the print processing on the scanned data.

[0102]

25 In the SCAN to WEB application 517, the certification processing unit 161 displays the login screen 413 illustrated in Fig. 4(b) on the operation display unit 150a (step S601). After the user inputs a user ID and a password on the login screen 413, the certification processing unit 161 receives each key code via the OCS 126 and the
30 SCS 122. Then the received user ID and password are transmitted to the WEB server 300, thereby completing the login to the WEB server

(step S602).

[0103]

Subsequently, the certification processing unit 161 receives a login result from the WEB server, and determines whether or not the login
5 has succeeded (step S603). When the login has failed, an error message indicating the failure is displayed on the operation display unit 150a (step S604).

[0104]

On the other hand, when the login has succeeded, the print processing
10 unit 501 of the SCAN to WEB application 517 displays a scanned data file list screen 703 on the operation display unit 150a of the operation panel 150 (step S605), thereby leading to a state of waiting for event input. Fig. 7(b) illustrates an example of the scanned data file list screen 703. As illustrated in Fig.7(b), the scanned data file list
15 screen 703 displays, in a selectable manner, the list of the scanned data files stored in the storage directory 302 on the Web server 300.

[0105]

At this point of time, the user selects a desired scanned data file on the scanned data file list screen 703 and presses a copy start button
20 (not shown).

[0106]

The print processing unit 501 determines whether or not the event received from the OCS 126 via the SCS 122 is the copy start button (step S606). If the event is the copy start button, the print processing
25 unit 501 downloads the selected scanned data file from the WEB server 300 (step S607).

[0107]

Then, the print processing unit 501 calls the print function registered in the image function library 165, thereby causing the black
30 and white laser printer (B&W LP) 101 or the color laser printer 102 to start the print processing on the downloaded scanned data (step

S608). At this point of time, based on the print function, processing required for the print processing is performed: the ECS 124 performs job generation and job start, and the MCS 124 performs image memory area allocation and release, for example.

5 [0108]

According to the composite machine 500 of the second embodiment, the print processing unit 501 of the SCAN to WEB application 117 receives the scanned data stored in the WEB server 300, and performs the print processing on the scanned data. Thus, the scanned data stored
10 in the WEB server 300 may be referred to by the composite machine 100 for printing without using the PC200, thereby improving usability of the scanned data managed by the WEB server 300.

[0109]

(Third embodiment)

15 According to the composite machines 100 and 500 of the first and second embodiments, respectively, the SCAN to WEB applications 117 and 517 transfer the scanned data file of the scanned image directly to the WEB server, so that the WEB server performs character recognition processing. On the other hand, a composite machine 800
20 of the third embodiment performs the character recognition processing on the scanned data, and then transfers a recognized data file obtained through the character recognition processing to a WEB server 300.

[0110]

Fig. 8 illustrates a main configuration of the composite machine
25 800 of the third embodiment and a network configuration including the composite machine. Fig.9 is a block diagram illustrating an entire configuration of the compound machine 800 of the third embodiment.

[0111]

As illustrated in Figs.7 and 8, the composite machine 800 of the
30 third embodiment is different from the composite machine 100 of the first embodiment in that the composite machine 800 includes an OCR

application 118. Other configurations of the composite machine 800 are the same as those of the composite machine 100 of the first embodiment.

[0112]

5 The OCR application 118 performs the character recognition processing on scanned data generated by a SCAN to WEB application 117 to thereby generate a recognized data file. A transfer unit 163 of the SCAN to WEB application 117 transfers the generated recognized data file to the WEB server 300.

10 [0113]

Scan processing, the character recognition processing, and processing of transferring the recognized data file to the WEB server 300, all performed by the composite machine 800, are to be described below. Fig.10 is a flowchart illustrating a procedure of the scan processing, the character recognition processing, and the process of transferring the recognized data file to the WEB server 300, which are performed by the composite machine 800.

[0114]

Processing from login screen display performed by the certification processing unit 161 of the SCAN to WEB application 117 through conversion into scanned data performed by a scan processing unit 162 of the SCAN to WEB application 117 (steps S1001 through 1009) is executed in the same manner as the processing (steps S301 through S309 in Fig. 3) performed by the composite machine 100 of the first embodiment.

[0115]

Following the generation of the scanned data, the OCR application 118 inputs the generated scanned data and performs the character recognition processing on contents of the inputs to generate a recognized data file as a result of recognition (step S1010). Then, the transfer unit 163 of the SCAN to WEB application 117 transfers

the generated recognized data file to the WEB server 300. This transfer processing is performed, in the same manner as the processing performed by the composite machine 100 of the first embodiment, by httpd 142 and a network controller 104 activated by inetd 141 in response to instructions from the transfer unit 163.

[0116]

Therefore, without further requiring the character recognition processing on the received recognized data file, the Web server 300 immediately stores the recognized data file in a storage directory 302.

[0117]

As mentioned above, according to the composite machine 800 of the third embodiment, the scan processing unit 162 of the SCAN to WEB application 117 causes a scanner engine 103 to scan the document to thereby generate the scanned data. Subsequently, the OCS application 118 performs the character recognition processing on the generated scanned data to thereby generate the recognized data. The transfer unit 163 of the SCAN to WEB application 117 then transmits the generated recognized data to the WEB server 300 on the Internet 170. Consequently, the recognized data may be collectively managed by the Web server 300, thereby ensuring the recognized data even in the event of failure of the composite machine 800 and also allowing efficient usage of the recognized data.

[0118]

(Fourth embodiment)

According to the composite machine 800 of the third embodiment, the OCR application 118 performs the character recognition processing on the scanned data generated by the SCAN to WEB application 117 and transmits the recognized data file to the shared storing directory 302 on the WEB server 300. Thus, printing the recognized data file requires accessing the WEB server 300 from the PC 200 on the Internet

170 before performing printing by the WEB browser 201. On the other hand, according to a composite machine 1100 of the fourth embodiment, the composite machine 1100 is capable of printing the recognized data file stored in a storage directory by further accessing the Web server
5 300.

[0119]

Fig.11 illustrates a main configuration of the composite machine 1100 of the fourth embodiment. As illustrated in Fig.11, the composite machine 1100 is different from the composite machine 800 of the third
10 embodiment in that the composite machine 1100 includes a print processing unit 501 in a SCAN to WEB application 117. Other configurations of the composite machine 1100 are the same as those of the composite machine 800 of the third embodiment.

[0120]

15 The print processing unit of the SCAN to WEB application 117 prints a recognized data file selected by the user from among recognized data files stored in a shared storage directory 302 on the WEB server 300. The print processing is performed on the recognized data file by the print processing unit 501 in the same manner as the print processing
20 (Fig. 6) performed by the composite machine 500 of the second embodiment.

[0121]

As mentioned above, according to the composite machine 1100 of the fourth embodiment, the print processing unit 501 of the SCAN to WEB
25 application 117 receives the recognized data stored in the storage direction 302 on the WEB server 300 and performs the print processing on the received recognized data. Consequently, the recognized data file stored in the WEB server 300 may be printed through reference from the composite machine 800 without using the PC 200, thereby
30 improving the usability of the recognized data managed by the WEB server 300.

[0122]

[Effects of the Invention]

As mentioned above, the invention of claim 1 provides an effect such that the scanned data may be collectively managed by the WEB server, thereby allowing ensuring the scanned data even in the event of failure of the image forming apparatus and also efficient usage of the scanned data. Moreover, the invention of claim 1 provides an effect such that the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0123]

The invention of claim 2 provides an effect such the scanned data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the scanned data even in the event of failure of the image forming apparatus and also the efficient usage of the scanned data.

[0124]

The invention of claim 3 provides an effect such that the scanned data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the scanned data managed by the WEB server.

[0125]

The invention of claim 4 provides an effect such that desired scanned data from among the scanned data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the scanned data managed by the WEB server.

[0126]

The invention of claim 5 provides an effect such that software development for applications including a SCAN to WEB application may be carried out with only a portion specific to a user, thereby reducing labor of the software development.

[0127]

The invention of claim 6 provides an effect such that recognized data may be collectively managed by a WEB server, thereby allowing ensuring the recognized data even in the event of failure of an image forming apparatus and also efficient usage of the recognized data. Moreover, the invention of claim 6 provides an effect such that the generated recognized data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0128]

The invention of claim 7 provides an effect such that the recognized data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the recognized data even in the event of failure of the image forming apparatus and also the efficient usage of the recognized data.

[0129]

The invention of claim 8 provides an effect such that the recognized data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the recognized data managed by the WEB server.

[0130]

The invention of claim 9 provides an effect such that desired recognized data from among the recognized data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the recognized data managed by the WEB server.

[0131]

The invention of claim 10 provides an effect such that software development for applications including a SCAN to WEB application and a character recognition application may be carried out with only a portion specific to a user, thereby reducing labor of the software development.

[0132]

The invention of claim 11 provides an effect such that the scanned data may be collectively managed by the WEB server, thereby allowing ensuring the scanned data even in the event of failure of an image forming apparatus and also efficient usage of the scanned data.

5 Moreover, the invention of claim 11 provides an effect such that the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0133]

10 The invention of claim 12 provides an effect such that the scanned data may be collectively managed in a desired storage area on the WEB server, thereby allowing ensuring the scanned data even in the event of failure of the image forming apparatus and also the efficient usage of the scanned data.

15 [0134]

The invention of claim 13 provides an effect such that the scanned data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the scanned data managed by the WEB server.

20 [0135]

The invention of claim 14 provides an effect such that desired scanned data from among the scanned data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the scanned data managed by the WEB server.

25 [0136]

The invention of claim 15 provides an effect such that recognized data may be collectively managed by a WEB server, thereby allowing ensuring the recognized data even in the event of failure of an image forming apparatus and also efficient usage of the recognized data.

30 [0137]

The invention of claim 16 provides an effect such that the recognized data may be collectively managed in a desired storage area on the WEB

server, thereby allowing ensuring the recognized data even in the event of failure of the image forming apparatus and also the efficient usage of the recognized data. Moreover, according to the invention of claim 16, the generated scanned data is collectively managed by the WEB server, thereby allowing reduction of storage capacity of a storage device of the image forming apparatus.

[0138]

The invention of claim 17 provides an effect such that the recognized data stored on the WEB server may be printed by reference from the image forming apparatus without using a client terminal, thereby improving usability of the recognized data managed by the WEB server.

[0139]

The invention of claim 18 provides an effect such that desired recognized data from among the recognized data stored on the WEB server may be printed by the reference from the image forming apparatus without using the client terminal, thereby improving the usability of the recognized data managed by the WEB server.

[Brief Description of the Drawings]

[Fig. 1]

Fig. 1 illustrates a main configuration of a composite machine according to a first embodiment and a network configuration including the composite machine.

[Fig. 2]

Fig. 2 is a block diagram illustrating an entire configuration of the composite machine of the first embodiment.

[Fig. 3]

Fig. 3 is a flowchart illustrating procedures for processing of scanning a document and processing of transferring a scanned data file to a WEB server, which are performed by a SCAN to WEB application.

[Fig. 4]

Fig. 4(a) illustrates an example of a capability selection screen displayed on an operation display unit of an operation panel. Fig.

4(b) illustrates an example of a login screen. Fig. 4(c) illustrates an example of a storage directory selection screen.

[Fig. 5]

Fig. 5 illustrates a main configuration of a composite machine according to a second embodiment and a network configuration including the composite machine.

[Fig. 6]

Fig. 6 is a flowchart illustrating a procedure of print processing performed on a scanned file by a SCAN to WEB application of the second embodiment.

[Fig. 7]

Fig. 7(a) illustrates an example of a capability selection screen displayed on an operation display unit of an operation panel. Fig. 7(b) illustrates an example of a scanned data file list screen.

[Fig. 8]

Fig. 8 illustrates a main configuration of a composite machine according to a third embodiment and a network configuration including the composite machine.

[Fig. 9]

Fig. 9 is a block diagram illustrating an entire configuration of the composite machine of the third embodiment.

[Fig. 10]

Fig. 10 is a flowchart illustrating procedures for scan processing, character recognition processing, and processing of transferring a recognized data file to a WEB server, which are performed by the composite machine of the third embodiment.

[Fig. 11]

Fig. 11 illustrates a main configuration of a composite machine according to a fourth embodiment.

[Reference Numerals]

100, 500, 800, 1100 Composite machine

	101	Black and white laser printer
	102	Color laser printer
	103	Scanner engine
	104	Network controller
5	105	Hardware resources
	110	Software group
	111	Printer application
	112	Copy application
	113	Fax application
10	114	Scanner application
	115	Net file application
	116	Process check application
	117, 517	SCAN to WEB application
	118	OCR application
15	120	Platform
	121	General-purpose OS
	122	SCS
	123	SRM
	124	ECS
20	125	MCS
	126	OCS
	127	FCS
	128	NCS
	130	Applications
25	150	Operation panel
	150a	Operation display unit
	161	Certification processing unit
	162	Scan processing unit
	163	Transfer unit
30	164	OCS function library
	165	Image function library

170 Internet
 200 PC
 201 WEB browser
 300 WEB server
 5 410, 701 Capability selection screen
 413 Login screen
 414 Storage directory selection screen
 501 Print processing unit
 702 SCAN to WEB print button
 10 703 Scanned data file list screen

[Name of the Document] Abstract

[Abstract]

[Objective of the Invention] To ensure and efficiently use scanned data even in the event of failure of an image forming apparatus.

15 [Means for Achieving the Objective] An image forming apparatus includes a scanner engine 103 as a hardware resource, applications 130 for performing processing specific to service to a user involved in image forming processing, and control service interposed between the hardware resource and the applications 130. The image forming
 20 apparatus is provided with a SCAN to WEB application including a scan processing unit 162 for causing the scanner engine to perform scan processing on a document to generate scanned data, and a transfer unit 163 for transferring the scanned data generated by the scan processing unit 162 to a storage directory 302 on a WEB server 300 connected to
 25 the Internet 170.

[Selected Drawing] Fig. 1

FIG. 4

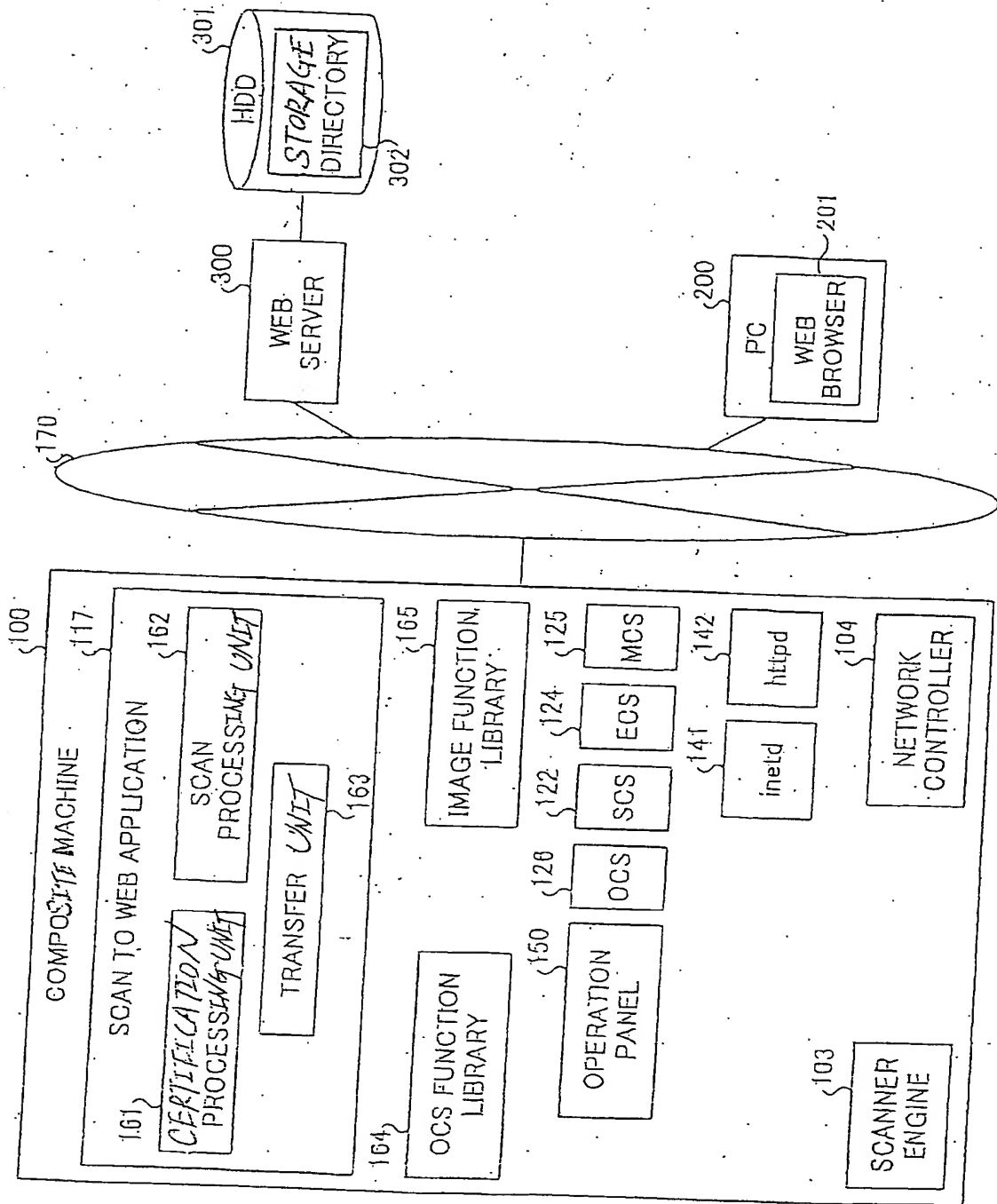


FIG. 2

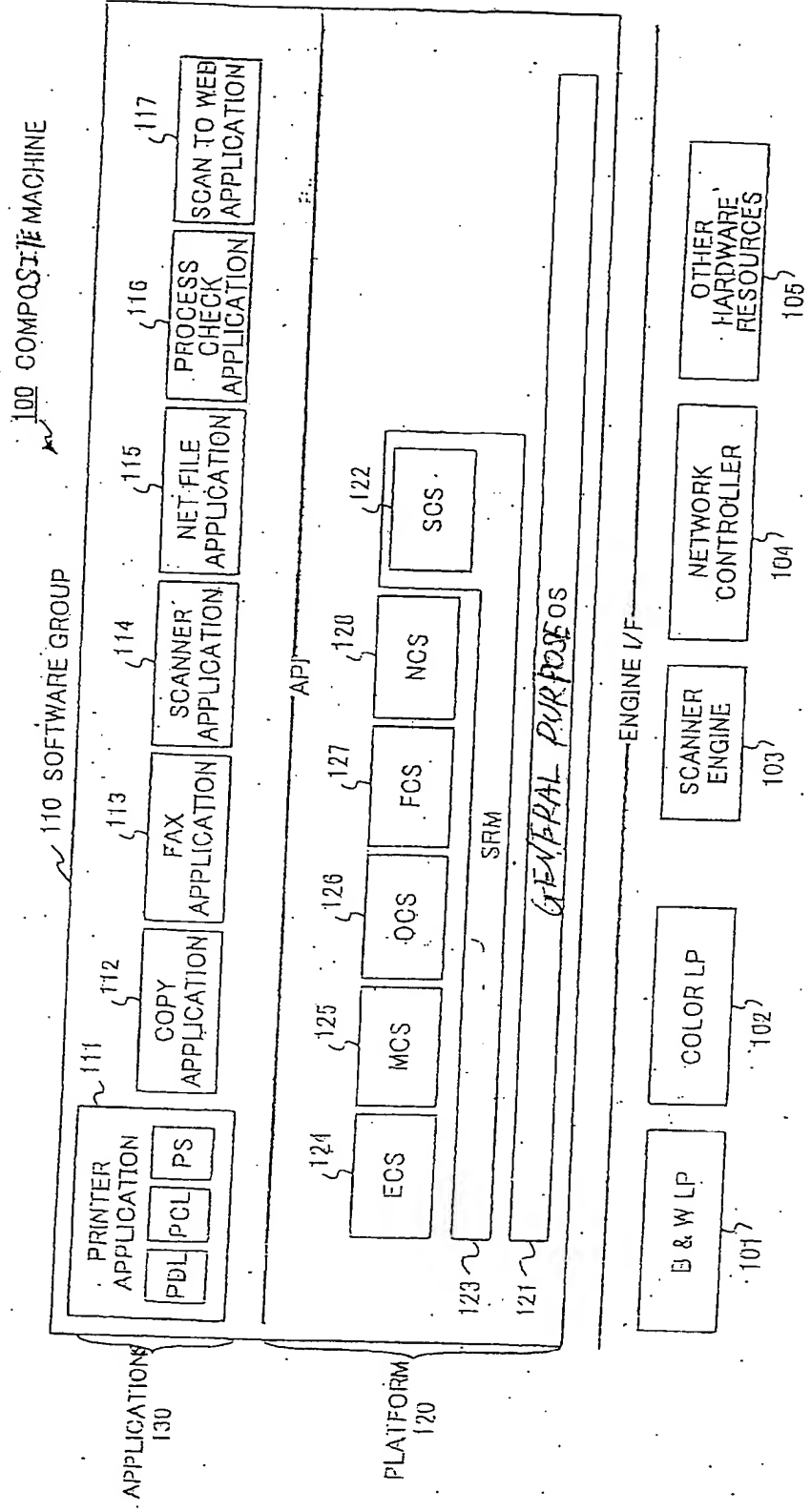


FIG. 3

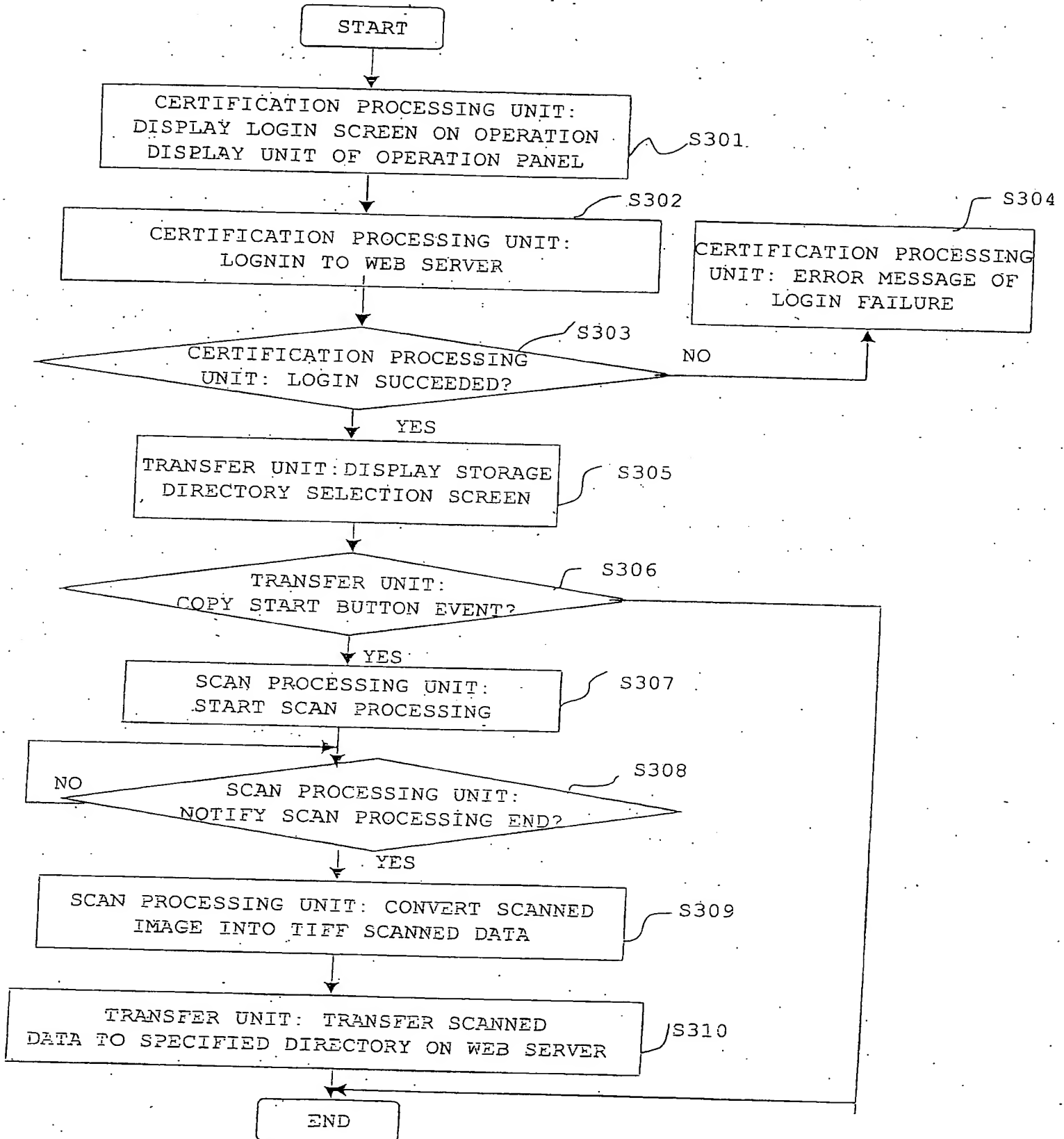


FIG. 4

(a)

150a

410

411

412 CAPABILITY SELECTION

COPY

SCANNER

FACSIMILE

CAPABILITY SELECTION

SCAN TO WEB

(b)

150a

413

COPY

SCANNER

FACSIMILE

LOGIN

USER ID:

PASSWORD:

OK CANCEL

(c)

150a

414

COPY

SCANNER

FACSIMILE

STORAGE DIRECTORY

<https://www.xxxsrv.ne.jp/scandata1> ▲

<https://www.xxxsrv.ne.jp/scandata2>

<https://www.xxxsrv.ne.jp/scandata3>

▼

FIG. 5

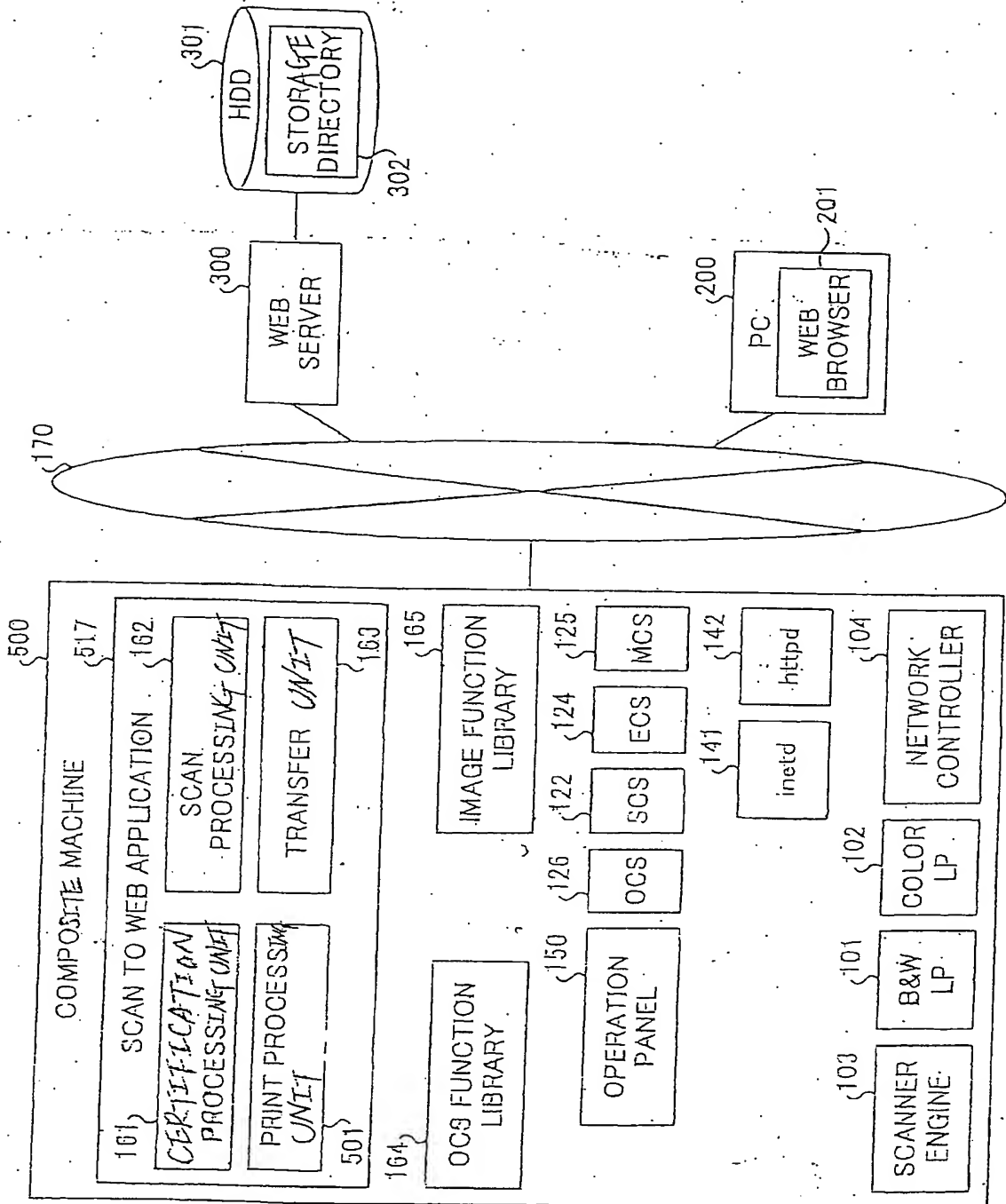


FIG. 6

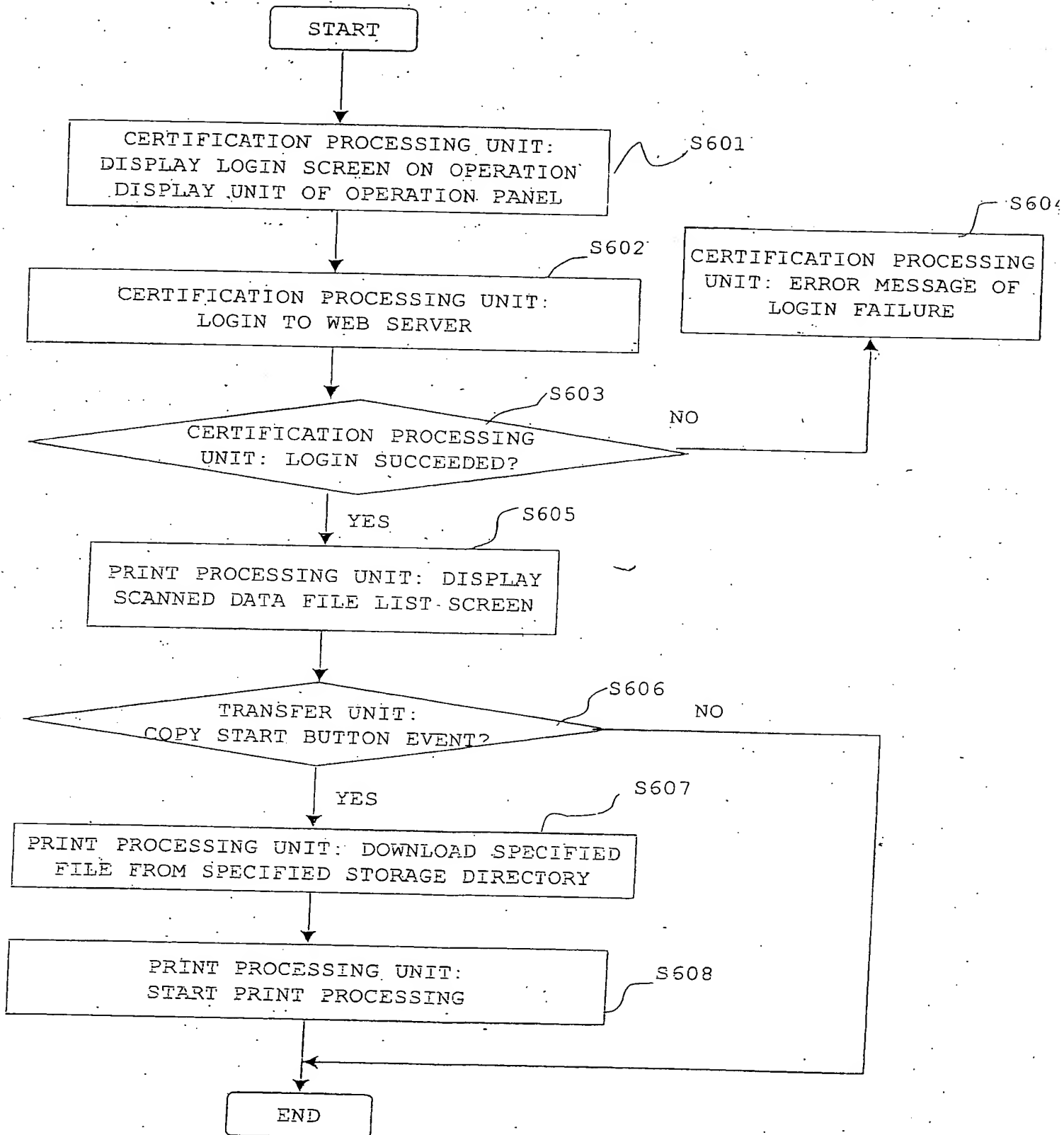


FIG. 7

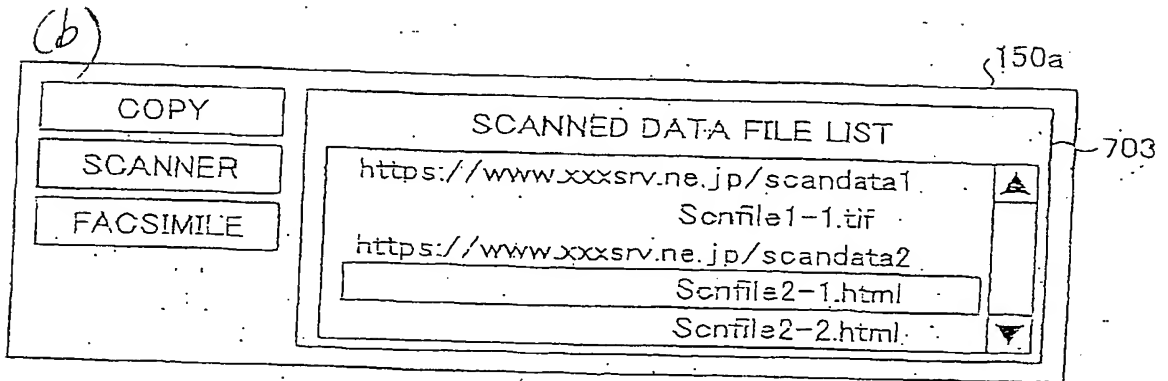
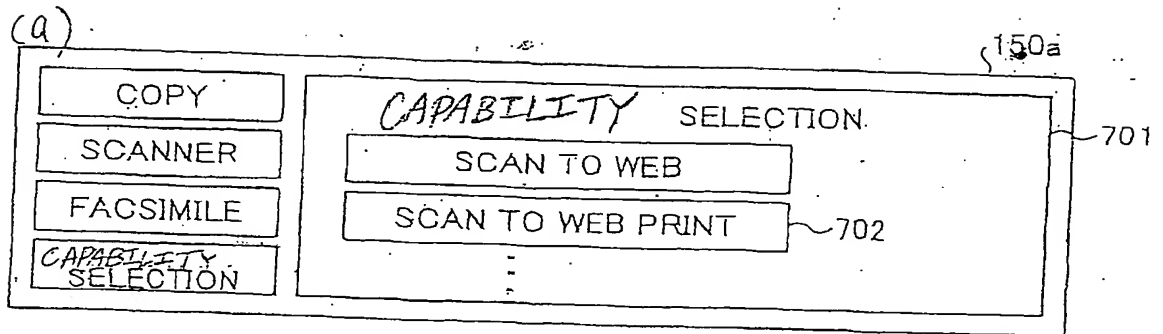


FIG. 8

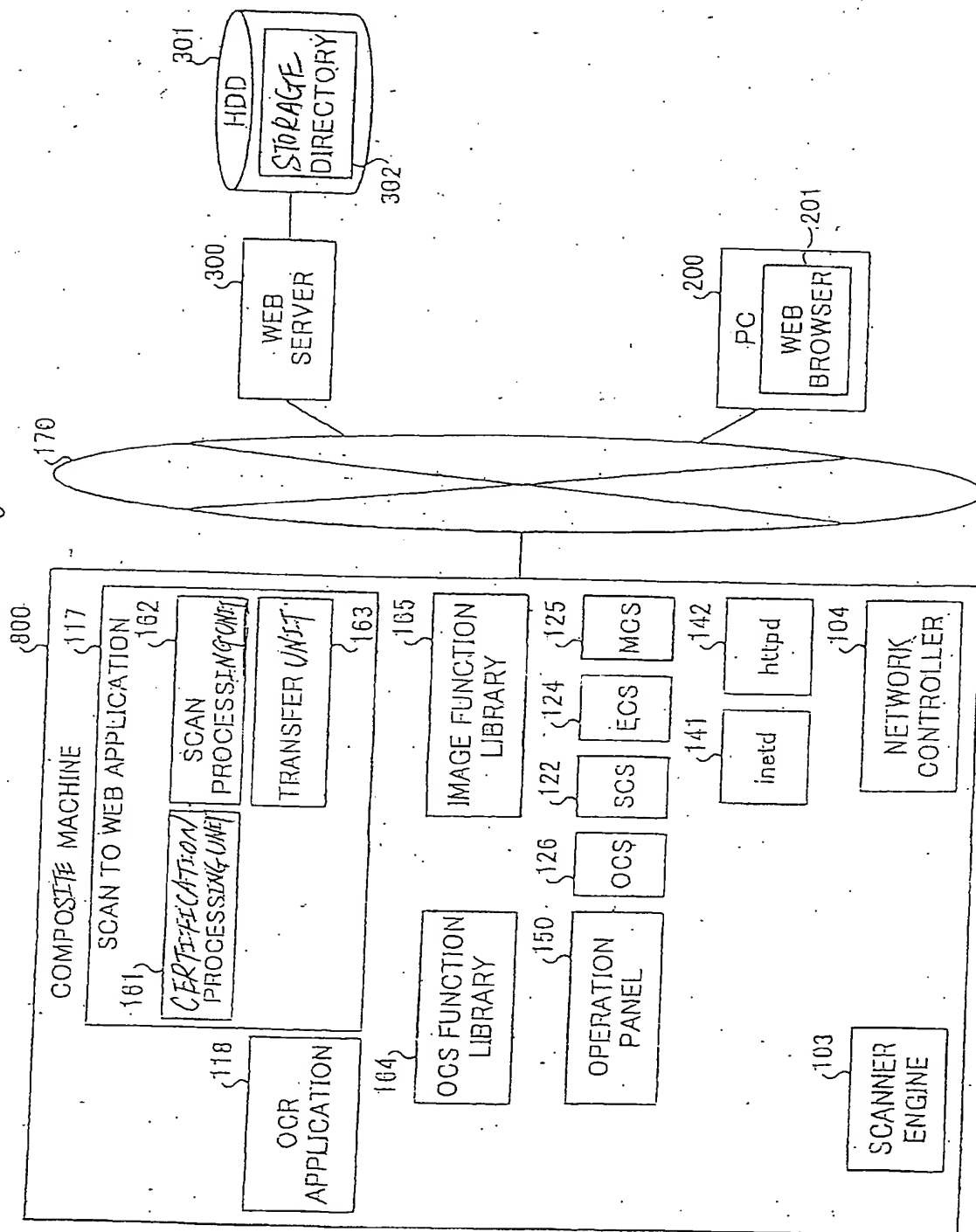


FIG. 9

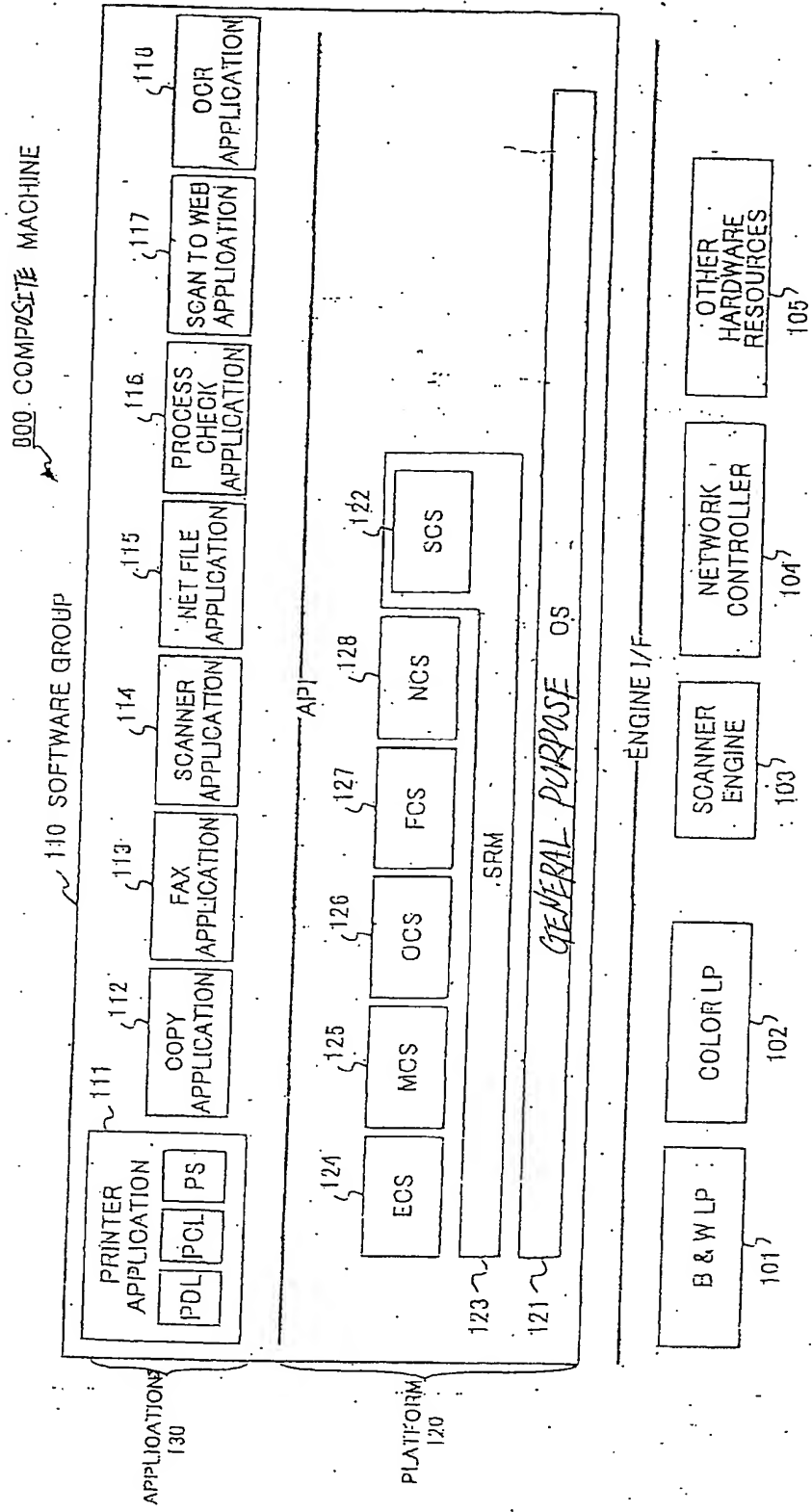


FIG. 10

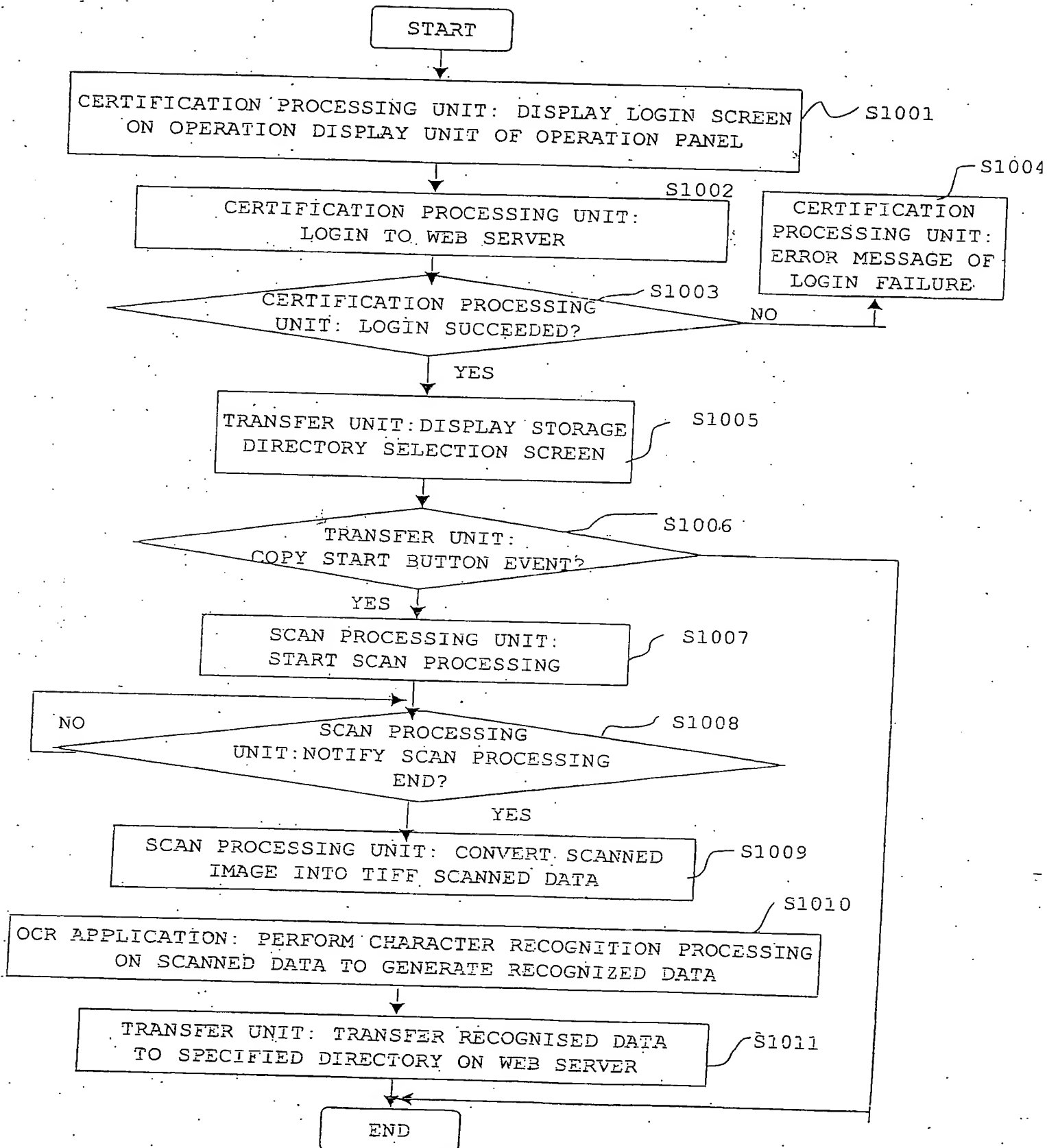


FIG. 1

